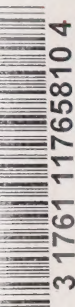


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Safety and Health Guide for Grain Elevator Employees

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Labour Canada Labour
Affairs Officer

OSH Committee
Member/Representative

**Safety and Health Guide
for Grain Elevator
Employees**

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Introduction

This guide contains information for safety and health in grain elevators. Explanations, in simple terms, of the legislated requirements for health and safety under the Canada Labour Code, Part II, and the Canada Occupational Safety and Health Regulations relating to grain elevators are included. Where applicable, references to the Code and Regulations appear at the end of items; e.g., CLC: 124. or COSHR: 17.3. Reference is also made to some relevant standards and guidelines.

Although most of the requirements applicable to grain elevators are included, the guide does not cover all of the provisions of the Regulations. The guide is not intended to provide an interpretation of the legal requirements and should not be used as a substitute for the Canada Labour Code, Part II, or the Regulations.

I. Legislative Framework

The Canada Labour Code, Part II, is the occupational safety and health legislation in the federal jurisdiction. The purpose of Part II is to prevent workplace accidents and injuries. Grain elevators licensed by the Canadian Grain Commission, certain feed mills and feed warehouses, flour mills and grain seed cleaning plants are under federal jurisdiction.

Every grain industry employer in the federal jurisdiction must make sure that the safety and health of every person employed by that employer is protected. Refer to the Canada Labour Code, Part II, sections 124. and 125. for specific employer duties.

Grain industry employees in the federal jurisdiction are generally responsible for taking

reasonable care of their own safety and health and that of anyone affected by their work. Refer to the Canada Labour Code, Part II, section 126. for specific employee duties.

II. Monitoring for Safety

The practical way for employers and employees to fulfill their workplace safety and health duties is to:

1. Carry out regular general inspections of the workplace. Any hazards found must be removed, controlled or guarded against to prevent accidents. Keep accurate inspection records.

2. Carry out regular inspections of operating equipment; e.g., conveyor systems, cleaners, and other equipment such as ladders, chains, cables and ropes.
3. Carry out regular inspections of equipment such as elevating devices, piping systems, boilers and pressure vessels, and fire extinguishing equipment. These inspections are mandatory by law. COSHR: 4.5, 5.12, 5.13
4. Carry out planned inspections of all types of fire protection equipment, including sprinkler systems, standpipes, hoses, hose nozzles, extinguishers and other fire protection equipment to make sure that they are in good condition and ready for emergency use. COSHR: 17.3

5. Keep tools, machines and other equipment in good repair and safe to use.
CLC: 125.(t)
6. Inspect all new equipment and their installation, process changes, new construction or building modifications.
CLC: 125.(t)
7. Where applicable, verify that employees are trained in the care and use of personal protective equipment and that personal protective equipment is worn where required. CLC 125.(v)
8. Analyse any new piece of equipment to detect any hazard(s) associated with the equipment or processes which are inherent to (natural to) the equipment or process.

III. Accident/Hazardous Occurrence Investigation and Reporting

1. Every employee who knows of a workplace accident or any thing that is likely to be hazardous to anyone in the workplace is required to report it, without delay, to the employer and the safety and health committee and/or representative (where these exist). COSHR: 15.3
2. Once an employer knows about a work-related accident or disease or other hazardous event, that employer must name a qualified person to look into the

hazard and report to management in writing. The employer must tell the safety and health committee or representative what happened and the name of the person appointed to investigate. COSHR: 15.4(1)

In the event of an accident the employer shall notify the appropriate authorities; i.e., Labour Canada, fire, police, ambulance. CLC: 125.(c)

3. During investigations employers and employees must work together so that all facts can be gathered and the accident causes found.
4. Where an employee is killed or seriously injured in a workplace, no one shall disturb the accident scene until released

by a safety officer, except to save a life, prevent injury or relieve human suffering, prevent disruption of a necessary public service or prevent needless damage to or loss of property. CLC: 127.(1)

5. The employer shall report, by telephone, fax or telex, to a Canada Safety Officer within 24 hours if there is

- a death
- a disabling injury to two or more employees
- the loss of, or loss of use of, a body part
- the permanent decrease of a body function
- an explosion
- damage to a boiler or pressure vessel resulting in fire or rupture of the vessel

- a free fall of or damage to an elevating device that makes it unserviceable.

COSHR: 15.5

Note: "disabling injury" means a work-related injury or disease that prevents an employee from going to work or from being able to do all the duties of the regular job on any day after the day of injury or disease, whether or not that following day is a working day for that employee. COSHR: 15.1

6. Employers shall keep written records of all accidents. These records must contain the date, time, place and causes of the accident and the steps taken to correct the situation. If an employee is injured, list

the name, how the accident happened and the causes of the injury. COSHR: 15.6(1)

All accident and injury records and reports are to be given to the safety and health representative or safety and health committee who may make written comments on the report. COSHR: 15.6(2)

IV. Emergency Procedures for Terminal and Transfer Elevators

1. Emergency procedures are to be prepared by the employer with the help of the safety and health committee or representative (where these exist) to deal with a fire, to rescue someone trapped in a confined space, to handle a bomb

threat, an accumulation, leak or spill of a hazardous substance, a power failure or an emergency situation where evacuation would not be advisable. COSHR: 17.5

2. Keep emergency procedures up-to-date and posted for the information of all employees. COSHR: 17.6(2)
3. Emergency procedures must include a plan of the building, including the name and address of the building as well as the name and address of the owner, location of the emergency equipment and power control switches, and emergency evacuation plans, where necessary. COSHR: 17.5(2)

4. Every emergency evacuation plan must include the length of time it takes to evacuate the building and the name and telephone number of the chief emergency warden. COSHR: 17.4(2)(c)(d)
5. Every employee must be trained in emergency procedures and how to use and operate the emergency and fire protection equipment and must know where this equipment is. COSHR: 17.6(1)
6. An evacuation or emergency drill must be held at least once a year. COSHR: 17.10(1) The employer must notify the local fire department for the building where the drill is to take place at least 24 hours before the drill. COSHR: 17.10(4)

7. An automatic emergency lighting system must be provided and maintained.
COSHR: 6.10
8. A visual inspection of all exits, fire escapes, stairways and emergency equipment must be carried out by a qualified person at least every six months.
COSHR: 17.9(1)

A record of each inspection carried out, dated and signed by the person who made the inspection, must be kept by the employer, in the building inspected, for two years. COSHR: 17.9(2)

V. Fire and Explosion Prevention

The large amounts of dust produced by the handling of grains and feeds is a serious fire and

explosion hazard. Therefore special fire and explosion prevention and protection measures must be followed.

Grain dust will explode when the concentration of dust in the air exceeds a certain level and there is a source of ignition. Some sources of ignition are poorly maintained or inappropriate electrical equipment, smoking, matches, hot surfaces (bearings, conveyors), spontaneous ignition (of oily wastes, rubbish and dusts in ducts and flues), static electricity and open flames.

To reduce the possibility of explosions, follow these steps:

1. Educate employees about fire and dust explosion hazards and prevention.
CLC: 125.(q)

2. Permit smoking only in **designated areas** of the workplace.
3. Clean up dust often enough to prevent a dangerous build-up. Lessen dust build-up by having smooth walls and floors. Keep the number of horizontal surfaces to a minimum, incline hard-to-reach surfaces to a 60° angle and place equipment to aid in cleaning. Stop the escape of dust by making equipment dust-tight and having a dust collection system that operates at a slight negative pressure.
4. Ground all electrical motors, ducts, metal bins, dust collectors, etc. Only electrical equipment certified safe for use is allowed in hazardous areas. COSHR: 13.5.

5. Never throw metal objects into a bin. They may strike a spark and cause an explosion.
6. Follow hot work procedures for welding, cutting, soldering and other hot work in hazardous areas (see Section XVII. Hot Work Procedures).
- 7.(a) The design, construction and installation of all electrical equipment shall meet the standards set out in the Canadian Electrical Code for the safety and health of employees. COSHR: 8.3(1)
- (b) All electrical equipment must be operated and maintained to meet the standards set out in the Canadian Electrical Code. COSHR: 8.3(2)

8. Driers must be located outdoors in detached fire resistant buildings or in separate rooms with a fire resistance rating of not less than two hours.
9. Furnaces and boilers must be located in detached fire resistant buildings or in separate enclosures with a fire separation time of not less than two hours.
10. Portable fire extinguishers suited to the conditions and hazards found in grain elevators must be provided and kept in good working condition.
COSHR: 17.11(2)(h)
11. Portable fire extinguishers must be located, where they can be seen, on every floor. They must be safely mounted within easy reach. COSHR: 17.3(1)

12. Inspections of portable fire extinguishers every 6 months and the attachment of durable signed and dated tags is mandatory. COSHR 17.9.(1)(2).

Record monthly visual inspections on a durable tag.

13. Employees must be taught what to do when there is an emergency. They must know where the fire protection and emergency equipment is, how it works and how to use it. COSHR: 17.6(1)

VI. First Aid

1. The employer must inform employees in writing the details of how first aid will be provided for them at their workplace. COSHR: 16.2(1)(2)

Minimum requirements for first aid supplies, first aid attendants and first aid rooms are found in First Aid Regulation, Part XVI.

2. Injuries that occur during work are to be reported and written up in an approved first aid record book at the time first aid is given. Keep first aid records for at least two years. COSHR: 16.12(1)(3)
3. First aid supplies must be available in all grain elevators and kept clean, dry and in serviceable condition. A sign that is easy to see must show where the first aid kit is, so that employees can find it when they need it. First aid rooms, where provided, must be supervised by a first aid attendant and kept clean and tidy.

They must be lighted, heated and equipped as required by the regulations and never used for storage.

COSHR: 16.7, 16.9, 16.10

4. At least one trained first aid attendant must be available where there are four or more employees on one shift or where the workplace is more than two hours travel time from a doctor or hospital.

COSHR: 16.3(1)

5. Keep one copy of material safety data sheets (MSDS) of all hazardous materials used in the workplace in the first aid room. Where no first aid room exists, MSDS must be readily available in the workplace. CLC: 125.2.(1)

MSDS provide information that first aid attendants or medical personnel may need to provide the most appropriate First Aid.

6. Post site-specific emergency information in every first aid room and every first aid station. Include telephone numbers for doctor, ambulance, hospital, poison control centre, fire department and police.

Keep these numbers posted near the telephones so that help can be called quickly in emergencies. COSHR: 16.6

VII. Housekeeping

Good housekeeping is most important in grain elevators for the prevention of fires and explosions. A regular daily cleaning program is required so that spills are cleaned up

immediately and dust is removed. Maintaining a clean, safe work environment is the responsibility of the employer and all employees in the workplace.

1. All work areas, passageways, storerooms and service rooms must be kept clean and tidy. COSHR: 2.12
2. Take garbage and waste materials from the workplace and dispose of it safely as often as necessary to protect the safety and health of employees.
COSHR: 9.6(1)(2)
3. Walkways, stairways and exits must be kept clear, clean and serviceable at all times. COSHR: 2.12

4. Floor sweeping and removal of dust from other surfaces must be done in a way that will keep the dust from spreading.
COSHR: 2.12(2)

VIII. Dust Control Systems

1. Grain elevators must have dust control systems which will keep the dust concentration in the air at acceptable levels. Where this is not possible, respiratory protection equipment must be worn. CLC: 125.1.(a)
2. Dust control systems, including power sources, ducts, and filtration units must be inspected, cleaned and maintained on a regular basis. Make necessary repairs as soon as a failure occurs to keep control of grain dust. CLC: 125.(t)

3. Where dust control systems are not possible, use other engineering controls, e.g., shrouding.

IX. Labour Canada Guideline on Blow Down Procedures

"Blow down" is the procedure by which compressed air is used to blow dust from ledges, pipes and other hard to clean areas during dust removal.

Labour Canada recommends that **blow down procedures** be allowed only when vacuum cleaning or sweeping is not practicable and when adequate procedures to ensure the safety and health of employees have been developed, written and followed. Any **blow down procedure** to be used at the grain elevator should meet the requirements outlined below:

Designated Blow Down Areas

1. Each blow down area (vertical and horizontal dimensions) must be completely and suitably isolated (closed off) from all other operating areas. Each shall be clearly defined in writing so that there can be no confusion as to the area boundaries during the cleaning process.

Sweeping procedures

2. It is mandatory that each area to be blown down shall as a preliminary requirement, be thoroughly cleaned by sweeping, brushing and vacuuming to the maximum extent possible. Dust shall be swept up and removed progressively from the area.

Electrical Isolation

3. A written procedure is required for each isolated blow down area listing each electrical circuit that must be de-energized at the motor control centre (MCC) or at the sub-station. In each case, the employee doing the actual blow down shall have his/her own padlock on the MCC door, or circuit panel and/or office doors as applicable throughout the cleaning operation.

Physical Isolation

4. When screens or other barriers have to be installed to isolate an area, then a written procedure is required listing the

temporary screens which must be installed or in place, together with their location, before blow down commences.

Perimeter Isolation

5. Management shall ensure that no work such as welding, use of explosive-actuated fastening tools or electrical portable tools, or any other activity capable of creating sparks is carried out within the isolated area while blow down is underway.

Non-Sparking Equipment

6. All tools used during the blow down operation shall be spark resistant. This includes air hose clamps, air wands and trigger controls, and shovels.

7. Employees carrying out the blow down or who may be required to enter the isolated area shall wear non-sparking footwear.

Respirators

8. Only approved respirators shall be worn within the area while blowing down.

Air Pressure and Equipment

9. Air pressure must not exceed the level necessary to dislodge static dust nor cause the dust cloud to exceed an airborne concentration of 50 per cent of the LEL (lower explosive limit).

Note: "lower explosive limit" means the lower limit of flammability of a chemical agent or a combination of

chemical agents at ambient temperature and pressure, expressed

(a) for a gas or vapour, as a percentage in air by volume, and

(b) for dust, as the weight of dust per volume of air.

10. The air wand shall be fitted with a self-closing valve.

11. Air wands in use shall be non-sparking and no longer than can be manoeuvred easily and kept under the operator's control.

Blow Down Procedure

12. Employees assigned to blow down duties shall be provided with a copy of the written procedures required by these guidelines and be made aware of the hazards involved.
13. Employees shall be trained in the correct way to blow down, including the use and control of the air valves, to prevent the unnecessary and continuing circulation of dust after removal from ledges, girders, spouts, etc.
14. Blow down shall be carried out within each isolated area in a manner that will permit the dust to settle quickly and be swept up and removed progressively.

15. Dust shall not be moved or collected into piles using air pressure.
16. One employee shall be in charge of the blow down in each area to ensure compliance, at all times, with these guidelines.
17. It is imperative that all air hoses and associated equipment be removed from the area being cleaned before lockout is released. This equipment must be returned to stores control. The indiscriminate use of air for other cleaning purposes is not permitted.

X. Personal Protective Equipment

Personal protective equipment includes goggles, safety glasses, hard hats, ear muffs and plugs, protective clothing such as high visibility vests, gloves, rubber coats, hair nets, safety boots, respirators, safety harnesses, safety belts and lanyards, lifelines, barrier creams and all other devices worn or used by a worker.

1. Personal protective equipment and clothing must be worn to prevent injury if the hazard cannot be controlled in any other way. COSHR: 12.1
2. All protective clothing and equipment must be kept clean. COSHR: 12.3(b)
Keep soiled clothing separate from clean clothing.

3. All personal protective equipment and clothing must be carefully fitted, maintained, inspected and tested.
COSHR: 12.2, 12.3
4. Loose clothing, long hair, dangling accessories or other similar items that are likely to be hazardous to the safety and health of an employee in the workplace must not be worn unless they are so tied, covered or otherwise secured as to prevent the hazard. COSHR: 12.12
5. Lanyards and lifelines must be specifically designed and manufactured for one purpose and used for that purpose only.

XI. Personal Service Rooms

Personal service rooms include change rooms, toilet rooms, shower rooms, lunch rooms, living space, sleeping quarters or a combination of the above. COSHR: 1.2

1. All personal service rooms must be kept clean. COSHR: 9.2(1)
2. The temperature of personal service rooms and food preparation rooms must be kept at a level not less than 18°C and, where reasonably practicable, not more than 29°C. COSHR: 9.9
3. Enough hot water must be provided for personal washing purposes. The water must be kept at a temperature of not less

than 35°C and not more than 43°C.

COSHR: 9.18

4. Soap or other hand cleaner must be supplied in a dispenser at wash basins. COSHR: 9.22(a) Bar soap is not permitted.
5. Enough paper towels, a continuous towel or an air blower must be provided for hand drying. COSHR: 9.22(b)
6. Toilet paper must be provided near each toilet. COSHR: 9.16
7. In toilet rooms and food preparation areas, the floor and lower 150 mm of walls and partitions in contact with the floor must be water-tight and unaffected by moisture. COSHR: 9.10(2)

8. Storage spaces must be provided for overcoats and outer garments not worn by employees while they are working.
COSHR: 9.43
9. Lunch rooms must be separate from any place where there is a possibility of contamination by hazardous substances.
COSHR: 9.40
10. The lunch room, if supplied, must be large enough to hold tables and chairs for the number of employees using the lunch room at one time. COSHR: 9.40(f)
11. Food waste must be placed in waste containers and removed in a way which will not soil the premises.
COSHR: 9.39

12. Toilet rooms are to be located not more than 60m (approx. 200 ft) and not more than one storey above or below every work site. COSHR: 9.14

XII. Drinking Water

1. **Potable water** (suitable for drinking) that meets the standards set out in the Guidelines for Canadian Drinking Water Quality, published from time to time by authority of the Minister of Health and Welfare Canada, **must be provided for drinking, personal washing and food preparation.** COSHR: 9.24
2. Containers used for distributing or carrying drinking water must be free from harmful organisms. COSHR: 9.25

3. Except where drinking water is provided by a fountain, a supply of single-use drinking cups and a fire resistant waste container (for used drinking cups) must be placed near the water container.
COSHR: 9.27
4. Ice cubes to cool drinking water or to provide contact refrigeration of food must be made from potable water.
COSHR: 9.28

XIII. Electrical Equipment

To reduce the possibility of dust explosions, electrical systems must be designed, installed and maintained to meet the requirements of the Canada Electrical Code. COSHR: 8.3

1. All testing or work on electrical equipment must be done by a qualified person or by an employee under the direct supervision of a qualified person. COSHR: 8.4(1)
2. Access paths to every electrical switch, control device or meter must be kept free from obstruction. COSHR: 8.23(2)
3. All electrical equipment must meet the requirements of the Electrical Safety Regulations. Flashlights used in grain elevators must be Class II, Group G, Division 1, approved.
4. Follow written procedures for isolating electrical equipment to be sure that electrical power is shut off and cannot be

accidentally supplied to equipment during maintenance, installation, etc.

COSHR: 8.12(1)(2)

5. All electrical controls, circuit breakers and fuses must be labelled to show exactly which circuits they control.

COSHR: 8.23(1)

6. Promptly replace or repair damaged electrical plugs and cords.

CLC: 125.(k)(iii)

7. Electrical equipment rooms should be pressurized and free of dust. These rooms must not be used as storage areas.
Restrict entry to authorized personnel.

8. **Never use makeshift devices** to by-pass approved switches and receptacles.

9. Use approved extension cords and inspection lights in locations which may contain enough combustible dust to produce an explosion or fire.
COSHR: 8.3(1)

Make sure that light bulbs of the appropriate wattage are used so that all areas can be clearly seen. COSHR: VI

XIV. Explosive Actuated Fastening Tools

An "explosive actuated fastening tool" is a tool that, by means of an explosive force, propels or discharges a fastener for the purpose of impinging it on, affixing it to, or causing it to penetrate another object or material.
COSHR: 13.1

1. All explosive actuated fastening tools used by employees shall meet the standards and be operated as set out in CSA Standard Z166-1975.
COSHR: 13.7(1)
2. No employee shall operate an explosive actuated tool unless authorized to do so by the employer. COSHR: 13.7(2)
3. If explosive actuated fastening tools are to be used in grain elevators a hot work procedure is required (see Section XVII, Hot Work Procedures).
4. An explosive actuated fastening tool and shells must be safely stored and locked up when not in use.

5. Eye or face protection, or both, must be worn by operators, assistants, and nearby people when explosive actuated fastening tools are in use. COSHR: 12.6
6. Fasteners must never be driven into easily penetrated or thin materials or materials of unknown resistance unless the material is backed to prevent the fastener from passing completely through the material. COSHR: 13.7(3)
7. Always use the charge with the lowest force that will set the fastener.

XV. Grain Cars

1. Employees shall be trained in the safe loading, unloading, moving and working around, on, inside or, when necessary,

under hopper or other grain carrying cars. CLC: 125.(q)(s)(t)(v)

2. Before commencing to load and unload any type of rail car, employees must make sure that the air in the brake system is "bled off" and the hand brakes carefully set.

XVI. Fall Protection Systems for Hopper Cars

1. Every employee who uses fall protection equipment shall be instructed and trained in how to use, operate and maintain the equipment. COSHR: 12.15(2)
2. The fall protection system is intended to allow employees to load hopper cars without falling from cars due to loss of

balance, slipping, high winds, rain or ice. The use of a fall protection system does not eliminate the need for common sense. If the weather is unfavourable and the worker does not feel safe in doing loading work, that worker should not risk injury. Workers have the right to refuse dangerous work. See: CLC: 128.(1)(b)

3. Every employee who may be required to load hopper cars shall be instructed and trained in all procedures relating to safe work, including climbing on the hopper cars. CLC: 125.
4. Employees who may be required to ride grain cars in order to apply brakes shall wear an appropriate work positioning

system (WPS) and shall be instructed and trained in its use, operation and maintenance. CLC: 125.(q)

XVII. Hot Work Procedures

1. Hot work procedures are required in any part of a grain elevator where work is being done in a normally hazardous area with tools or equipment which by their nature could be a source of spark or ignition. COSHR: 11.9

Such tools include

- (a) electric or gas welding equipment;
- (b) portable electric tools not approved for use in hazardous locations;

- (c) explosive actuated tools;
- (d) tools which may produce sparks while in use; and
- (e) open flame devices including cutting equipment and soldering torches.

2. The following information is required on a hot work permit:

- (a) date and time of issue and period for which it is valid (not to exceed 24 hours);
- (b) identification of the work and the area in which work is to be done;

- (c) personal protective equipment required for persons doing the work;
- (d) all necessary tests, including tests for oxygen deficient, flammable or toxic atmospheres;
- (e) the necessary procedures to make sure the job is done safely;
- (f) signatures of the persons authorizing the work, those supervising the work and those doing the work;
- (g) list of safety equipment, including fire extinguishers, hose lines, water containers, that is to be readily available;

- (h) the name of the qualified person who will be on fire watch duties.
COSHR: 8.8

3. In work areas covered by hot work permits, only the work specified is to be done and only the persons assigned are allowed in the work area.
4. All other necessary procedures, including lockout procedures, are to be confirmed before the work begins.
5. The hot work permit is to be posted in the work area where it can be easily seen.

Side 1, Hot Work Permit:

Cutting-Welding-Hot Work Permit

Not good for more than 24 hours.

Important: Precautions on reverse side must be followed without fail.

Date & Time Issued _____

Building _____

Floor and Dept. _____

Time Started _____ Completed _____

Work to be done _____

Items 1 and 2 of the required precautions listed on the reverse side have been completed. Arrangements have been made for Item 3. Permission therefore is granted for this work.

Date & Time

This permit expires _____

If fire occurs, phone no. _____ or use alarm box located at _____

Signed _____

Title of person in charge

Danger

Prevent Fires

Do not cut, weld, or use other open-flame or spark-producing equipment until the following precautions have been taken:

Check each item.

1. The area where the work is to be done has been prepared under the close supervision of the person in charge.
 - i. The sprinklers, where provided, are in operating condition and will not be taken out of service before this work is completed.

- ii. Combustible dust-producing machinery and equipment in the area is shut down and will remain shutdown until a qualified person declares it safe to resume normal operations.
- iii. The atmosphere and all surfaces within three meters (10 feet) of the work area are free of combustible dusts, vapours or liquids.
COSHR: 17.11(2)(a)

2. The following safeguards have been provided:

- (a) Combustible floors and walls are drenched with water or covered with non-combustible materials.
COSHR: 17.11(2)(f)

- (b) The flame or spark-producing operations (welding, cutting, etc.) are enclosed by portable screens, or all floor and wall openings within 15m (49.2ft) are tightly sealed and combustible materials are removed (or covered with a non-combustible cover if they cannot be removed). COSHR: 17.11(2)(e)
- (c) At least one Class A fire extinguisher and a 2.5 cm (1 inch) water hose connected to a water supply or 200 litres (45 gallons) of water are readily available at the work site. COSHR: 17.11(2)(h)
- (d) Appropriate personal protective equipment is present.

3. At least one qualified person is posted at the work site during the work and for a minimum of 30 minutes after, to put out any smouldering fires and to inspect the entire work area. COSHR: 17.11(2)(g)

XVIII. Welding and Cutting

1. A hot work permit is required for welding and flame cutting in fire hazard areas. COSHR: 17.11(1)
2. All welders must be trained in the safe operation of welding and cutting equipment. CLC: 125.(q)
3. Always assign a fire watcher when welding and cutting operations are carried out. The fire watcher must have fire fighting equipment readily available and

be trained in its use. The fire watcher is to remain on duty at least 30 minutes after the welding and cutting work is done to find and put out any smouldering fires. COSHR: 17.11(2)(g)

4. Cutting or welding must not be done where there may be explosive atmospheres, such as inside uncleaned or improperly prepared tanks or equipment, including where there may be enough combustible dust in the air to produce an explosion or fire. COSHR: 17.11(1)
5. Regular inspections must be made of all welding and cutting equipment to keep them in safe working condition.
CLC: 125.(t)

6. Adequate ventilation must always be provided to remove hazardous fumes produced by the work. CLC: 125.(n)
7. Welders and helpers must wear appropriate personal protective equipment including gauntlet gloves, flame resistant aprons, eye and face protection. CLC: 125.(j)
8. Welding screens are required to confine welding flash from people working nearby. CLC: 125.(j)

XIX. Compressed Gas Cylinders

1. Compressed gas cylinders must be kept away from excessive heat and must not be

stored where they might be damaged by passing or falling objects. COSHR: 10.8

2. Compressed gas cylinders must be stored in assigned safe locations. Never store them indoors unless requirements of the National Fire Code are met.
COSHR: 10.12

3. Compressed gas cylinders stored in a vertical position must be secured by chains, ropes, cables or other means to prevent them from falling or being knocked over. COSHR: 10.8

4. The pressure regulator and gauge must be kept in good working order.
COSHR: 10.10

5. If a cylinder is designed to accept a valve protection cap, the cap must be in place except when the cylinder is in use or is connected for use.
6. Cylinders containing different gases must be stored separately and must be clearly labelled. COSHR: 10.8
7. Empty cylinders must be marked **EMPTY (M.T.)** and never stored with full cylinders.
8. Cylinders of compressed **breathing** air must be analyzed every three months to ensure that there is **no** internal corrosion or oxygen depletion. Written records must be kept. (CSA Z180.1M1985)

9. Damaged or defective cylinders must be clearly marked and stored separately from full or empty cylinders. COSHR: 10.8
10. Oxygen and oils and greases are highly incompatible and may cause spontaneous combustion. **Never use oils or greases in combination with oxygen.**

XX. LOCKOUT PROCEDURES

Written lockout procedures are mandatory in all grain elevators. This will help protect employees from injuries due to accidental energizing of mechanical or electrical machines, equipment or systems and from exposure to hazardous substances while they are shut down for inspection, adjustment, maintenance, repair or alteration.

1. Always notify the person in charge and the machine operator before locking out equipment.
2. Turn off the point-of-operation controls which should be tagged

"DO NOT OPERATE-
DÉFENCE D'ACTIONNER"

and locked in the open position.

3. Turn off the main power controls (switch, breaker, or valve).
4. After the switch has been opened or the valve closed, the person or persons who will do the work must fasten their locks to the control lever, chain, other lockout device, or a multiple-lock adapter.

Then they must attach a tag describing the work being done, when the job will be completed, and the names of those doing the job.

- (a) Test by trying to disconnect a valve to make sure it cannot be moved accidentally to "on."
- (b) Try the machine controls themselves, as a test that the main controls are actually "off."
- (c) Electricians should use a volt meter to check the circuit at machines or equipment to be sure the circuit is dead before starting work or repairs on the machines or equipment.

5. Upon completion of repair or maintenance work, each employee removes his or her own lock and tag. The person who removes the last lock then notifies the person in charge that the work is finished and that the equipment can be returned to service.
6. Lockout instructions should be posted in a prominent place. They will:
 - describe the procedures to be used;
 - define the necessary lock and key control system;
 - specify the conditions under which a lock may be removed by someone other than the employee who locked it; and
 - identify lockout equipment (switches or valves) to be used or available at all times.

XXI. Confined Spaces and Bin Entry

According to Part XI, the Confined Spaces Regulation, "Class of confined spaces" means a group of at least two confined spaces that are likely, by reason of their similarity, to present the same hazards to persons entering, exiting or occupying them. COSHR: 11.1

"confined space" means an enclosed or partially enclosed space that

- (a) is not designed or intended for human occupancy except for the purpose of performing work,
- (b) has restricted means of access and egress, and

(c) may become hazardous to an employee entering it due to

- (i) its design, construction, location or atmosphere,
- (ii) the materials or substances in it, or
- (iii) any other conditions relating to it. COSHR: 11.1

Some examples of a confined space are a tank, a process vessel, an underground vault and a tunnel.

"Hot work" means any work where flame is used or a source of ignition may be produced.
COSHR: 11.1

1. Special care must be taken when going into, leaving or occupying enclosed places

such as a storage bins, silos and elevator boots, which are "confined spaces."

CLC: 125.(p)

2. A qualified person, who knows about the possible physical and chemical hazards in the confined space and has been trained to assess those hazards, must test the confined space for any hazards.

COSHR: 11.2(1)(2)(3)

3. The employer shall develop safe entry procedures. COSHR: 11.3(a)

4. Before entering a confined space, an employee must be trained in and follow the written entry procedures set out by the employer and sign the document indicating understanding of those procedures. This employee must be

trained in the care and use of the required protective equipment.

COSHR: 11.11(1)(2)

5. Except as provided in section 8 below, no one is allowed to enter a confined space until the concentration of toxic, flammable, explosive, infectious or other airborne hazardous substance is known and reduced to, and kept at, a safe level as confirmed by tests. COSHR: 11.4(1)
6. Oxygen deficiency may be corrected by a backup air supply.
7. Any liquid or free-flowing solid in which a person may become trapped must be removed from the confined space before anyone enters. COSHR: 11.4(1)(b)(ii)

8. The entry of any liquid, free-flowing solid or hazardous substance into the confined space must be stopped by disconnection, blanking off or the fitting of blank flanges.

COSHR: 11.4(1)(b)(iii)

9. Where the toxic air hazard cannot be reduced to safe levels, or where the level of oxygen is below 18 per cent by volume or above 23 per cent by volume at normal atmospheric pressure, protective equipment including approved breathing apparatus must be worn by the person entering the confined space.

COSHR: 11.5(1)

10. The employer must make sure that everyone entering, leaving or occupying a confined space wears an appropriate

safety harness that is securely fastened to a lifeline that:

- (a) is fastened to a safe anchor outside the confined space;
- (b) is controlled by a person trained in entry and emergency procedures;
- (c) protects the person from the hazard for which it is provided and does not in itself cause a hazard; and
- (d) is, where possible, equipped with a mechanical lifting device.

COSHR: 11.5(3)

11. The employer must make sure that someone trained in the entry and emergency procedures, and having an

alarm to call for help, is outside the space and in communication with the person inside.

In addition, two or more employees, one of whom is trained in the emergency procedures, holds a basic first aid certificate and is provided with the required protection and emergency equipment, must be nearby to help if there is an accident or other emergency.

COSHR: 11.5(1)(c)(d)(e)

12. All testing equipment, breathing apparatus, ventilation equipment, safety harnesses, lifelines and lifting equipment must be inspected before each use.

CLC: 125.(t)

A written report of such inspections, defects found and repairs made must be kept.

COSHR: 12.14(1)(2)

Required personal protective equipment must be worn. CLC: 126.(1)(a)

13. Confined Space Entry Procedure

- (a) Name the person in charge.
- (b) Warn workers, including contractors, of the planned entry.
- (c) Record the time of entry and exit of each person who enters or leaves the confined space.
- (d) Provide safe work procedures.
- (e) List the work crew.
- (f) Assign jobs and responsibilities.

- (g) List mechanical equipment such as belts and trippers, that are to be locked out and ensure that they are locked out.
- (h) Document details of required employee training.
- (i) **Provide a checklist** that includes the following tasks:
 - clearing of an area around the bin entry manhole so that people can enter and leave the space safely;
 - erection of a suitable barricade around the manhole;
 - testing for safe atmosphere and recording levels of any hazardous substances;

- review of emergency and rescue procedures;
- inspection of safety harness for wear, fit, buckle fasteners, etc., under the careful supervision of the person in charge;
- checking the safety line;
- inspection of winch and equipment by a qualified person; ensuring that any powered winch used for bin entry is approved for use in locations where there may be sufficient airborne combustible dust to produce a flammable mixture or an explosion;

- testing of cable/winch by lifting and lowering to bin bottom with 115 kg weight attached;
- inspection of protective clothing and personal protective equipment;
- verification of communication equipment and signals;
- inspection of extension light, including entire length of cord and plug;
- ensuring that **NO** tools and equipment are lowered into or removed from the bin while

anyone is in the bin (only non-sparking tools are allowed in the bin);

- storing of safety harness, safety lines and other protective equipment after use;
- use of a suitable container for transportation of tools and equipment to and from the confined space (where appropriate);
- return of all tools and equipment to the appropriate storage area on completion of the work;

- verification that all workers have left the bin and all work is completed; and
- completion of bin entry records.

XXII. Conveyors

1. Follow prescribed lockout procedures whenever repairing, adjusting or maintaining a conveyor. COSHR: 14.21

Belt Type Conveyors

- (a) Never cross over or under belt conveyors, except where safe passageways are provided.

- (b) Provide sufficient side clearance to allow safe access and operating space for inspection, lubrication, repair and maintenance.
- (c) Place the start button for a belt conveyor where the operator using it can see the entire length of the conveyor.
- (d) If two or more conveyors operate in a series, controls must be interlocked so that if a receiving conveyor is stopped, all conveyors feeding it are stopped.
- (e) Place **EMERGENCY** pull cords, stop buttons, limit switches or similar devices along conveyors to

provide for quick shut off in case of emergency.

Screw (Auger) Type and Drag Type Conveyors

- (a) All screw and drag type conveyors must be fully enclosed in a well-constructed strong housing, preferably constructed of steel grating.
- (b) All moving parts must be adequately guarded.
COSHR: 13.13
- (c) All openings or access ports to conveyor channels must be fitted with self-closing covers.

2. "Sweep augers" are portable, hand held, power augers used to remove or "sweep" the last of the grain from a bin or silo. They usually "sweep" the residual grain into a fixed auger.

XXIII. Forklifts and Powered Industrial Trucks

1. Operators of powered industrial trucks must be trained in the safe use of these trucks. COSHR: 14.23
2. All powered industrial trucks must be regularly inspected and maintained in safe operating condition. COSHR: 14.22
3. Know and observe the safe load capacity of the truck and of the floor on which the truck is being used. COSHR: 14.49(1)

Post the floor load capacity in an easily seen location.

4. Passengers are not allowed to ride on a forklift or other industrial truck unless it is designed to carry passengers.
COSHR: 14.29(1)
5. Where there exists or may exist enough airborne combustible dust to produce an explosion or ignitable mixture, **only industrial trucks approved for use in such locations** may be used.
6. Powered industrial trucks that travel faster than eight kilometres per hour or in reverse must be equipped with a horn, or similar device, that can be heard by everyone in the area. COSHR: 14.16

7. No operator shall use a forklift or other industrial truck unless there is a clear and unobstructed view of the area in which the equipment is used or the path to be followed or the employer authorizes the operator to do so, when directed by a signaller. COSHR: 14.25(1)
8. Powered industrial trucks must not be left unattended unless the control lever is positioned in neutral, the power is shut off and the brakes are set. Wheel chocks must be used if the truck is parked on an incline. The forks on forklift trucks must be fully lowered when the truck is parked.
9. When loading and unloading trucks, trailers, or railroad cars with forklift trucks, provision must be made to prevent

the truck, trailer or railroad car from moving. On trucks and trailers the brake must be set, and chocks placed under the rear wheels; on railroad cars the brakes must be set, blue flags* and derailleurs** placed as appropriate.

10. Portable dock boards must be fastened in position.

* "Blue flag" is a blue light, flag or sign used to mark a work area where movement of rolling stock is restricted.

** "Derailer" is a device temporarily strapped to the rail to stop movement of rolling stock.

XXIV. Car-Pulling Equipment and Capstans

1. The car-puller rope must not be frayed and must be free from knots or splices. It must be protected from damage. All hooks must be attached with a thimble on the cable end. The rope must be rated to maximum safe working load and **the rated capacity must not be exceeded.**
COSHR: 14.4(1)
2. The car puller is to be used for one purpose only. That is, to move cars.
3. A guard should be installed around the car puller winch to prevent injury to employees from the whiplash of breaking cables.

4. Inspect the car pulling equipment including capstan and base for cracks, loose bolts, etc.

Note: A capstan is a machine, either power rotating or "fixed wheeling" around which a rope or cable is wound to assist in moving an object.

XXV. Chains, Ropes and Slings

1. All chains, ropes, slings and fittings must be inspected before use, used correctly, and kept in safe working order.
COSHR: 14.41, 14.42
2. All U-bolt cable clips must be installed so that the U-bolt is in contact with the short or nonload-carrying end of the cable and the saddle is resting on the live or load

carrying end. Follow the clip manufacturer's recommendations about the number of and spacing of clips.
COSHR: 14.3(1)

3. Gloves must be worn at all times when handling chains, ropes and slings to prevent hand injuries. COSHR: 12.9
4. Remove immediately from service all **defective** chains, ropes or slings including those with kinks. CLC: 125.(t)
5. When using slings to lift materials or equipment, never allow the load to be carried over people. COSHR: 14.41
6. Store chains, ropes and slings in a dry place and in a tidy manner.
CLC: 125.(t)

7. Never use a chain, rope or sling to move a load exceeding the stated Maximum Safe Load.

Remember to consider the angle between the sling and the horizontal. As the angle between the load and the sling decreases, stress on the sling increases.

COSHR: 14.43(1)(2)

8. Never try to splice a chain by inserting a bolt through two links.
9. Do not hammer or force a chain hook into position.
10. Do not insert the tip of a hook into a chain link.

XXVI. Ladders, Portable and Fixed

1. Ladders must be inspected for defects before use. Remove defective ladders from service immediately. CLC: 125.(t)
2. Do **not** paint wooden ladders with any opaque material that would prevent detection of defects during inspection. COSHR: 3.11(1)
3. All portable ladders must be placed on firm footing and be equipped with a non-slip base or held, tied or otherwise secured to prevent slipping. COSHR: 3.11(2)

4. Ladders must **not** be lashed together to increase length. Get the right ladder for the job. COSHR: 3.11(1)
5. Ladders must never be used in any horizontal position as platforms, runways, or scaffolds, or for any purpose other than that for which they were designed.
6. Never use portable metal or wire reinforced ladders near non-insulated, unprotected or live electrical wiring or equipment. COSHR: 3.11(5)
7. Never use benches, chairs, boxes or other make-shifts in place of ladders. Ladders must not be placed on boxes or any other unstable base to obtain additional height. CLC: 125.(v)

8. Portable ladders must **not** be placed in front of doors unless the door is blocked open, locked or guarded. COSHR: 3.11
9. A fixed ladder must be installed where regular access is required. The ladder must extend .9m (3 ft.) above the upper landing or floor. The last three rungs of an extension ladder must extend above the floor. A roof top would also be classed as a landing. COSHR: 2.6
10. Fixed ladders should be anchored at intervals of not more than 3m (9 ft.) for the entire length of the ladder and have a clear space of at least 15cm (6 in.) behind every rung. COSHR: 2.8(4)

11. When using a stepladder, the legs must be fully spread and the spreaders locked.
COSHR: 3.11(2)
12. Never use the two top steps of a step ladder or the pail shelf as a step.
COSHR: 3.11(6)
13. Corner bracing or crossbracing inside bins must not be used as a ladder unless it has been designed to do two things: to crossbrace and to be rungs of a ladder.

XXVII. Machine Guarding

1. Machines must be guarded to protect employees from injury. COSHR: 13.13

2. A machine must not be operated unless the machine guard is in place. COSHR: 13.15(1)
3. Always make sure the machine cannot start up before removing a machine guard for repair or maintenance work. Be sure to follow lockout procedures when doing this work. COSHR: 13.16(1)
4. Machine guards must not be removed without the authorization of the area supervisor. COSHR: 13.16(1)

XXVIII. Manlifts

Manlifts must be constructed, installed and maintained in accordance with CSA standard B311-M1979, Safety Code for Manlifts. Items

in this section relating to this standard are indicated by *.

- 1.* The manlift and the safety device (attached to it) shall be inspected before it is placed in service, after any maintenance or repair work is completed and once every 12 months.
COSHR: 4.5
2. A written record of each inspection and test made in accordance with section 4.5 shall
 - (a) be signed by the person who made the inspection and test;
 - (b) include the date of the inspection and test and the identification and location of the elevating device and

safety device that were inspected and tested; and

- (c) set out the observations of the person inspecting and testing the elevating device and safety device.
- COSHR: 4.6(1)

Every record, referred to above, shall be made by the employer and kept by him in the workplace where the elevating device is located for two years after the date it was signed. COSHR: 4.6(2)

- 3. The two main types of manlifts used in the grain industry are Endless Belt and Hand-Powered Counterbalanced. Some requirements for each type of manlift are listed:

Endless Belt Manlifts

- (a)* Maze guard rails (staggered railing) or self-closing gates must be provided at all floor landings. They must be kept in good condition.
- (b)* Endless belt manlifts require a minimum level of lighting of 50 lx. on both the runs and the landings.
- (c)* The operating brake must be maintained so that it is capable of stopping and holding the manlift within a maximum of 60 cm travel when the descending side is loaded with 110 kg on each step.

- (d)* All manlifts in a given location should run at approximately the same speed.
- (e)* Step treads shall be slip resistant.
- (f)* If a step or a handhold is removed, the corresponding handhold or step must also be removed before the manlift is used again.
- (g)* Clearly visible and easily legible signs giving instructions for the use of manlifts must be posted and kept at each landing and on the belt immediately above each handhold.

For example:

(i) **FACE THE BELT**

USE THE HANDHOLDS

TO STOP--PULL ROPE

**DO NOT CARRY ANYTHING
ON THIS MANLIFT**

(ii) At the top floor, a clearly
visible sign must say:

TOP FLOOR--GET OFF

- (h)* The necessary safety devices, including safety brakes and emergency stops, must be kept in safe working order.
- (i)* Only tools that will fit entirely within the pocket of work clothes may be carried on a manlift.
- (j)* A step platform of suitable height must be provided, where necessary, at the lowest floor level served in order to accommodate the distance between the belt and the floor level.

Hand-Powered Counterbalanced Manlifts

Note: Authorized person means a person who, after having been warned of the hazards involved and instructed in the safe and

proper use of the manlift, has been authorized by the employer to use the manlift.

- (a)* No one is allowed to use the manlift until trained and authorized to use it.
- (b)* The manlift must be counter-balanced before it is operated to prevent too rapid movement.
- (c)* **Before stepping out of the cage or stepping from the manlift platform, insert the floor stop pin (safety locking pin) provided to ensure a positive hold at all landings except the bottom landing where the safety latch exists.**

Older model manlifts use a locking pin put through a hole in the cage frame and into the wooden guides. Operators must insert this locking pin before stepping out of the cage.

(d)* One person at a time on the manlift.

(e)* No freight, packaged goods, pipe, lumber, or materials of any kind, shall be handled on any manlift.

* No tools, except those which will fit entirely within a pocket in usual working clothes, shall be carried on any manlift.

- (f)* Hoistways must be enclosed on all sides (except at landing openings) to a height of not less than 2m (6.56ft) from the floor.
- (g)* Landing openings must be protected by self-closing gates.
- (h)* A clearly visible "**DANGER**" sign must be posted on the landing side of each door or gate.
- (i)* The necessary safety devices including car top overtravel, safety brake system, safety lock, and automatic floor lock, must be kept in good repair. COSHR: 4.4.

- (j)* Maintain cage gates or safety chains across manlift openings and provide a weight box fixed in place on the manlift.

XXIX. Fertilizers

Employees must be made aware of the hazards associated with handling and using fertilizers such as anhydrous ammonia. They must be trained in the care and use of all the necessary personal protective equipment. CLC: 125.(q)

Always read the directions for use or the material safety data sheet (MSDS) before working with any fertilizer. COSHR: 10.27
The MSDS will tell you of the hazards and the personal protective equipment (PPE) needed to protect your health.

XXX. Pesticides and Fumigation

Everyone who applies pesticides must be educated about their hazards and must be trained in their handling, storage, use and disposal.

COSHR: 10.17

XXXI. Safe Use of Pesticides

1. Always read and understand the label of every pesticide used and make sure you know what to do in an emergency.
 - (a) If the label is damaged or unreadable, do not use the material.
 - (b) Always know the pesticide being used. If going for medical aid, take the label for the doctor to read.

- (c) Before handling pesticide containers, check them carefully for leaks. If a container is leaking, follow approved workplace procedures for spills and leaks.
- (d) Do not mix different types or brands since they may not be compatible.

2. Read and understand the material safety data sheet (MSDS) before using or working with any pesticide or any hazardous substance. To work safely with pesticides, it is necessary to understand the hazards and procedures. MSDS must be located in the workplace and readily available to employees.
COSHR: 10.17

3. Always wear the recommended protective clothing and safety equipment.

CLC: 126.(1)(a)

- (a) When decontaminating gloves, wash the insides carefully to make sure your hands are not accidentally exposed to pesticides inside the gloves.
- (b) Make sure the protective apron is long enough to cover your boot tops.
- (c) Always wear rubber boots when handling pesticides and even when walking through areas that have been recently sprayed. Do not tuck pant legs into boots, especially when using granular formulations

which may enter the boot.

However if pesticide does get into your boots, wash your feet and change socks and boots immediately. Prevent pant leg bottoms from contacting liquids or recently sprayed areas-grasses, weeds etc.

4. Do not rub your eyes or touch your mouth while working with pesticides.
5. Do not eat, drink or smoke in the work area and do not keep food, drink, tobacco, chewing gum, cups or eating utensils anywhere in the work area or in work clothes. Wash your hands before eating, drinking, smoking or using the toilet.

6. Do not work alone when handling any toxic (poisonous) pesticides; make sure someone is immediately available to give aid if needed.

Note: The Canada Labour Code, Part II, does not specifically require the employer to have a "call in" system when employees are working alone. However, section 124. of the Code states, "Every employer shall ensure that the safety and health of every person employed by him is protected" and a call-in system might be classed as one method of protecting the safety and health of an employee while that employee is working alone.

7. Open, pour and mix pesticides in a safe way. Use the recommended tools to open containers. Stand upwind of all opening,

pouring and mixing operations and **work in a well-ventilated area.**

8. Keep first aid equipment and an adequate supply of clean water readily available in the mixing and loading areas.
9. **Never** use your mouth to siphon liquids or to blow out clogged spray nozzles.
10. Have available a supply of lime, coarse clay, sand, sawdust or other absorbent to soak up spilled pesticides. Should a leak or spill happen, keep people and animals away from the area. Report the spill to the manager immediately and decontaminate thoroughly.

11. Inspect vehicles for contamination after unloading. Do not allow a contaminated vehicle to leave until it has been cleaned.
12. Safely discard heavily contaminated clothing or faulty protective coverings, especially leaky gloves and footwear, so they cannot be used again. Replace gloves regularly.
13. After handling pesticides shower thoroughly, paying special attention to hair and fingernails. Change clothing daily, and more often if it is contaminated. Wash pesticide-soiled laundry separately from all other laundry. Discard heavily contaminated clothing.

14. Prevent pesticide poisoning by consulting the MSDS for emergency treatment or procedures. Learn to recognize the typical signs and symptoms of pesticide poisoning. If you feel ill during pesticide application, or shortly after, stop work and seek medical care **at once. Do not try to finish the job.**
15. Notify local fire fighting organizations of the contents of pesticide storage areas.
16. Place a durable sign outside the storage area warning of the nature of the hazard within. COSHR: 10.13

17. To reduce hazards from **release of pesticides into the environment**
- (i) do not have floor drains in the storage area; and
 - (ii) do not have sinks draining into the sewer system in the storage area.
18. Store herbicides separately from insecticides and fungicides. Insecticides and fungicides are often used together in a spray mixture, but if they are contaminated by herbicides, serious injury to plant material may result. Always determine compatibility before mixing insecticides and/or fungicides.

19. Personal protective equipment must be stored apart from pesticides, fumigants or other toxic materials.
20. Keep an antidote kit on hand to treat accidental exposure.
21. Ensure new containers are correctly labelled whenever pesticides are transferred to them. COSHR: 10.26
22. Storage areas for flammables shall be appropriately vented.
23. All electrical fixtures shall be installed and maintained intrinsically safe.

XXXII. Fumigation

(To be done by a qualified person.)

Fumigation is carried out in three phases: Pre-Fumigation, Fumigation and Post-Fumigation.

Phase I -- Pre-Fumigation

- (a) Check that all personal protective equipment and other equipment necessary for fumigation is available and ready to use.
- (b) Make sure that a chemical gas tester, other testing equipment, and the correct testing tubes are readily available.
- (c) Establish which bin or other area is to be fumigated.
- (d) Calculate the amount of fumigant that will be needed.

Phase II -- Fumigation

- (a) Record the date of application and the date for the next application.
- (b) Seal all openings, including cracks, caps and vent ducts, except for the access hole through which the fumigant will be applied.
- (c) Clear and clean area around access hole.
- (d) Place warning signs (that fumigation is being done) in basement and bin top.
- (e) Wear the required protective equipment and have a respirator available.

- (f) Carry out the fumigation procedure.

Phase III -- Post-Fumigation

- (a) Seal the access hole.
- (b) Dispose of fumigation materials/containers in a safe way.
- (c) Clean and return the equipment used during the fumigation, including gloves and applicator stand.
- (d) Carry out routine follow-up checks for possible leaks of the pesticide into the work areas.

- (e) Wash all exposed body areas thoroughly with soap and water, rinsing well.
- (f) Order replacement filters and respirator cartridges if required.
- (g) Complete records, including respirator usage.

XXXIII. Pesticide Storage

Pesticides and fumigants must be stored separately from all other substances, in a locked ventilated room separate from lunch rooms, offices, wash rooms, or any area occupied by people and separate from feed, fertilizer or seed storage areas.

Pesticides and fumigants must be stored:

- (a) in a room equipped with forced air exhaust ventilation which discharges to the atmosphere. The fan switch should be readily accessible to anyone entering the pesticide storage area;
- (b) in a well-lighted room large enough to provide for the adequate separation of each type of pesticide and fumigant;
- (c) in a locked room with the key available only to authorized personnel who have been trained in the use of pesticides and fumigants;

- (d) with a warning sign posted at the entrance door warning that pesticides and fumigants are stored within;
- (e) separately from herbicides so that they cannot react;
- (f) in approved containers, clearly labelled;
- (g) with appropriate absorbent material and equipment readily available for clean-up in case of a spill;
- (h) with instructions posted in the room for the disposal of containers, used absorbents and unused or contaminated pesticides and fumigants;

- (i) with a wash-up area located nearby;
- (j) with the telephone number of the nearest poison control centre readily available; and,
- (k) with MSDS readily available for the information of all employees.

XXXIV. Disposal of Pesticides

The use and disposal of pesticides is regulated provincially. As long as the pesticide is being used according to instructions on the label and is registered in the province, it is regulated as a pesticide. However, once it becomes unwanted, it may be regulated as a hazardous waste under different legislation.

Since there may be some variance in these regulations, consult with the provincial ministries of Environment or Agriculture for current information. Local agricultural representatives may have current information.

Types of Pesticide Waste

- (a) pesticide containers
- (b) excess unused pesticide concentrate
- (c) excess formulated spray solutions
- (d) samples and standards handled in the laboratory

XXXV. Waste Collection

Since waste collection must be done safely, the following procedures are necessary:

1. **Train** all employees in the up-to-date procedures to be followed.
2. **Use** the required personal protective and safety equipment.
3. **Segregate** all waste according to chemical type.
4. **Store** separately all pesticides that could possibly interact.

(**Note:** many substances belong to more than one hazard category.)

5. **Use** appropriate waste containers that must be:
 - (a) compatible with wastes, e.g., inert plastic or metal (glass containers

should not be used for flammable liquids);

- (b) tightly closed;
- (c) of a size and condition to be easily handled; and
- (d) properly labeled to show originator's name, address, building and room number, phone number, and the date of removal.

- 6. **Place** an inventory sheet on the outside of any box that contains more than one container.
- 7. **Transport** filled waste containers carefully to the storage area.

8. **Identify** and label all hazardous substances. **Unknown substances cannot be accepted for disposal.**

Note: The transportation of waste material falls under the jurisdiction of provincial authorities. For specific regulatory requirements on the transportation of dangerous goods, please contact Transport Canada or the provincial authority responsible.

